# Motherboard installation guide

Motherboard

E3194

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April 2007

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# Safety information

## Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adpater or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

## Operation safety

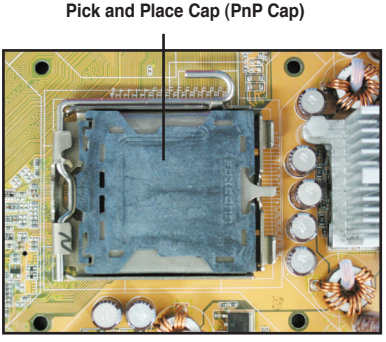
- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets, and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

# Chapter 1: Quick Start

## 1.1 Installing the CPU

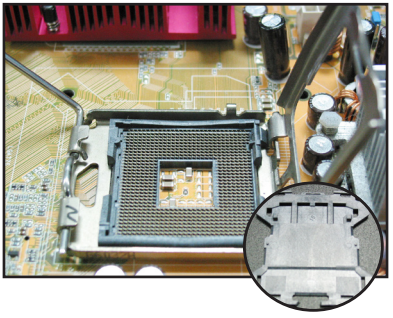
### 1.1.1 Intel LGA775 Socket

1. Locate the CPU socket on the motherboard.

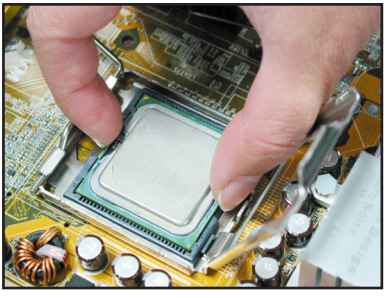



2. Release the load lever from the retention tab and lift the load plate. Then push the PnP cap from the load plate window to remove

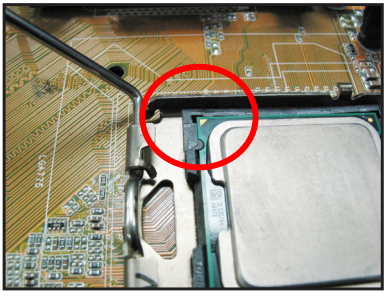
   To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.



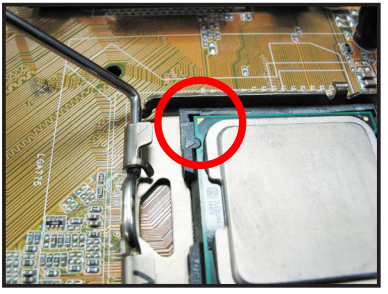
3. Position the CPU over the socket.

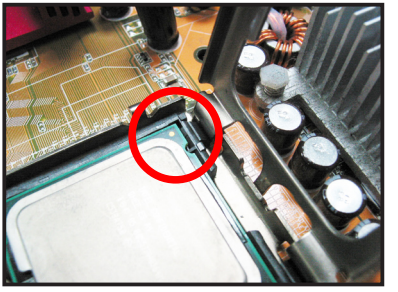


4. Make sure that the gold triangle is on the bottom-left corner of the socket.



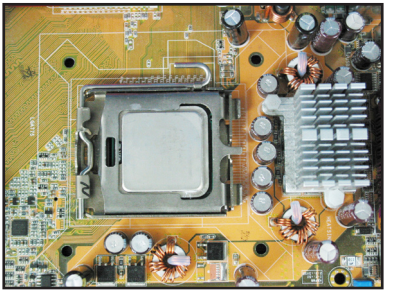
5. Fit the socket alignment key into the CPU notch.





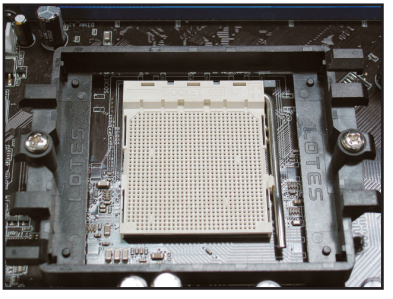
6. Close the load plate, then push the load lever until it snaps into the retention tab.

The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

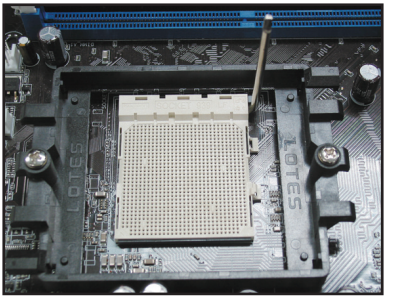


## 1.1.2 AMD AM2 Socket

1. Locate the CPU socket on the motherboard.



2. Press the lever sideways to unlock the socket, then lift it up to a 90º angle.

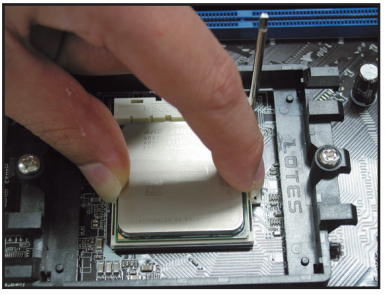


Make sure that the socket lever is lifted up to 90º angle. Otherwise, the CPU will not fit in completely.

3. Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.

   Carefully insert the CPU into the socket until it fits in place.

4. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

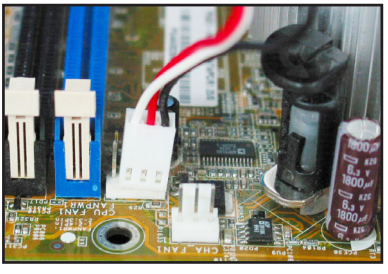


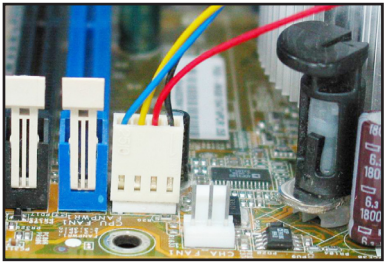
The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

## 1.2 Installing the heatsink and fan

To install the CPU heatsink and fan:

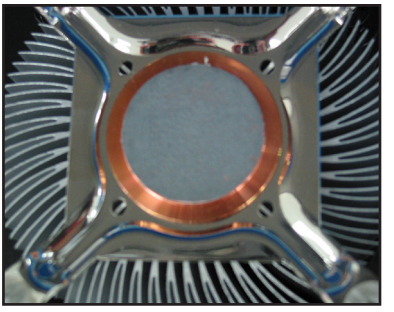
1. Select an Intel-certified or AMD-certified heatsink and fan assembly based on your motherboard. There are 3-pin (left) and 4-pin (right) fan connectors. Only CPU fans with 4-pin connectors supports the ASUS Q-Fan technology.





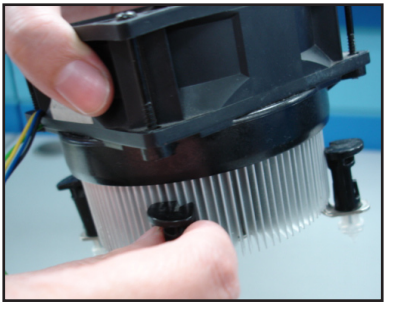
**For Intel-certified heatsink:**

2. Some heatsinks will come with pre-applied thermal paste. If so, do not scrape it off and remove the protective film only before installation. If not, before installing the heatsink, apply several drops of thermal paste to the exposed area of the CPU that the heatsink will be in contact with. Make sure that it is spread in an even thin layer.

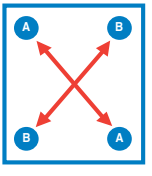


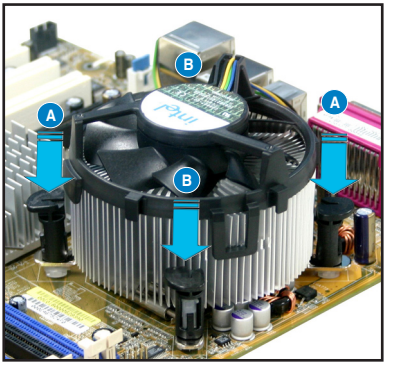
To prevent contaminating the paste, DO NOT spread the paste with your finger directly.

3. Orient each fastener with the narrow end of the groove pointing outward.

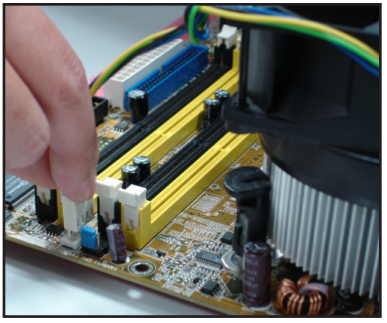


4. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.



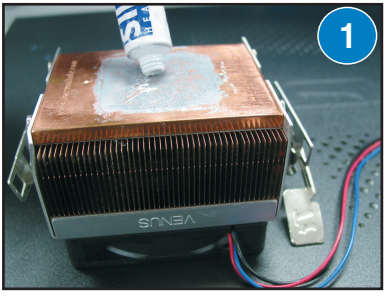
5. Connect the CPU fan cable to the corresponding connector on the motherboard.

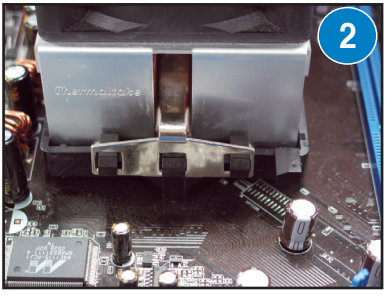


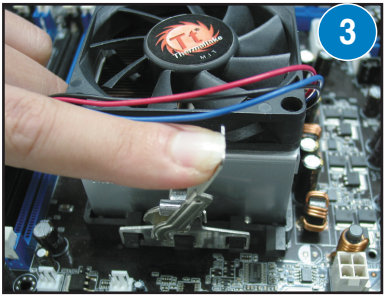
DO NOT forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector and we suggest you use an omni-directional heatsink to gain the maximum heat dissipation area.

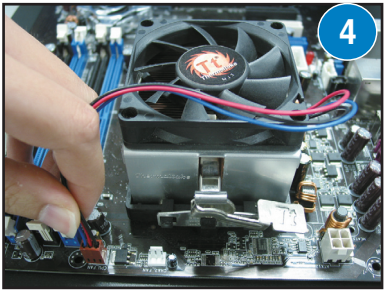
**For AMD-certified heatsink:**

Follow the instructions below to install an AMD-certified heatsink.



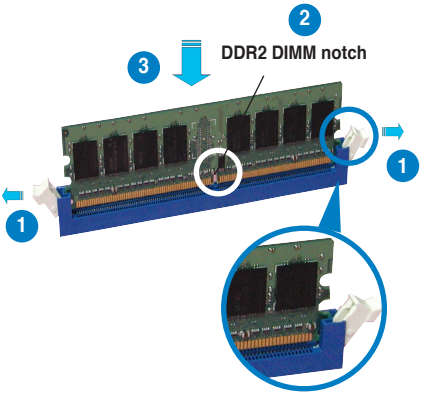



## 1.3 Installing a DIMM

Unplug the power supply before adding or removing DIMMs or other system components. Failure to do so can cause severe damage to both the motherboard and the components.

To install a DIMM:

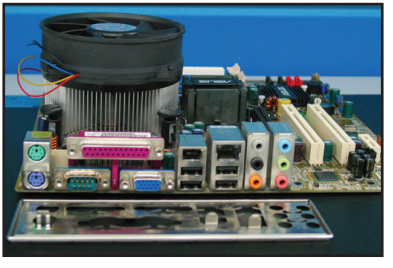
1. Press the retaining clips outward to unlock a DIMM socket by .
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.




- A DDR2 DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.
- To install two or more DIMMs, refer to the user guide bundled in the motherboard package.
- Refer to the user guide for qualified vendor lists of the memory modules.

## 1.4 Installing the motherboard

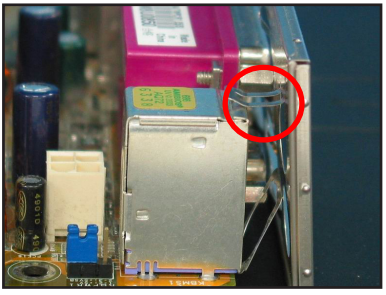
1. I/O ports differ with motherboards. Use and install the rear I/O shield that comes with the motherboard package only.



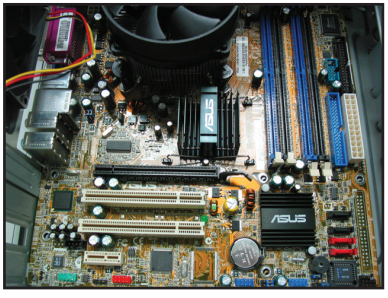
Some sharp edges and points might cause physical injury. We recommend you put on cut or puncture resistant gloves before motherboard and I/O shield installation.

2. Install the standoffs to the matched screw holes on the metal plate.

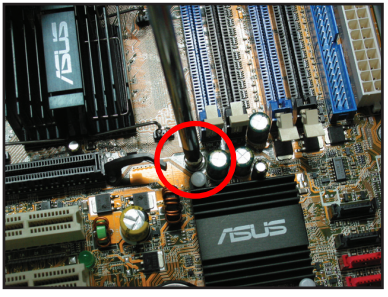
3. The I/O shield edge springs may damage the I/O ports. Be cautious when installing the I/O shield.



4. Position the I/O side of the motherboard toward the rear of the chassis and place the motherboard into the chassis.



5. Insert and loosely tighten each screw in a diagonal sequence first. After all the screws have been inserted, drive the screws until they are finger-tight.



- You may remove the metal slot covers for the expansion cards at the back of the chassis before installing the motherboard. For some chassis models, it might be difficult to remove the expansion slot cover after the installation.
- DO NOT over-tighten the screws. Doing so may damage the motherboard.

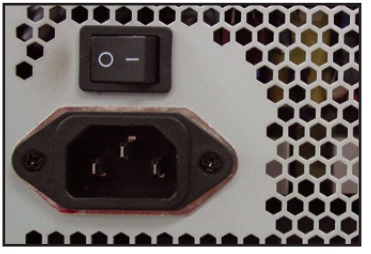
## 1.5 Installing the power supply unit

There are two kinds of commonly-used power supply units. One is with Active Power Factor Correction (PFC) and the other with passive PFC.

1. Select a power supply unit.

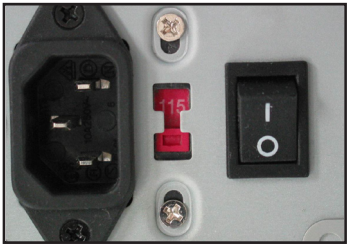
**Power supply with active PFC:**

Active PFC automatically corrects the AC input voltage.

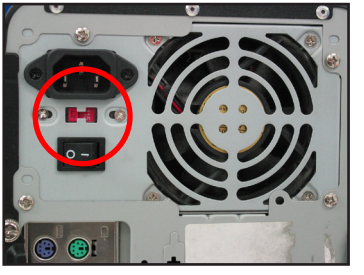


**Power supply with passive PFC:**

Passive PFC requires user to manually adjust the AC input voltage.




2. If you are using a power supply with passive PFC, adjust to the correct AC input voltage in your area.



Failure to adjust the power supply to the correct AC input voltage will seriously damage the system.

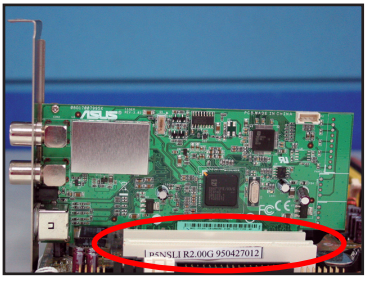
Use power supply units with safety certification only. Using unstable power supply units can damage your motherboard and other components. Refer to the user guide for power supply units that meet the motherboard requirements.

## 1.6 Installing an expansion card

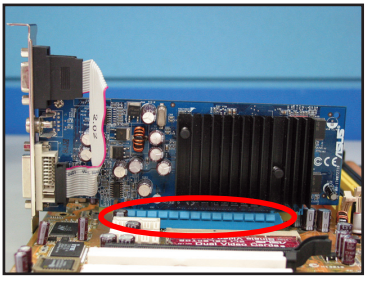
To install an expansion card:

1. Remove the metal slot cover opposite the expansion card slot where you wish to install an expansion card.
2. Install the expansion card and make sure that it is properly seated on the slot.
3. Screw to secure the card on the slot.
4. Repeat the previous steps to install another expansion card.

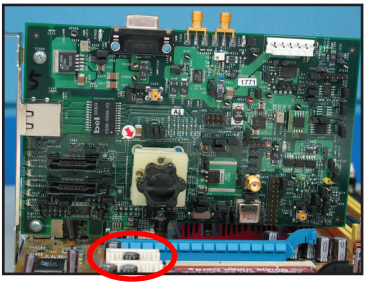
**PCI card**



**PCIE x16 card**



**PCIE x1 card**



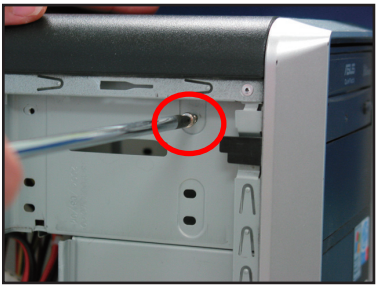
- Refer to the card documentation for the card configuration details, and to the motherboard user guide in case you need to configure any jumpers after installing the expansion card.
- Refer to the motherboard user guide for the instructions of the expansion card signal cable connection.

# 1.7 Installing disk drives

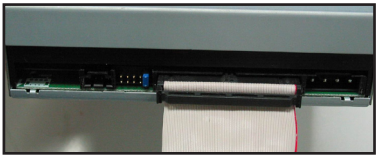
## 1.7.1 PATA optical disk drive

1. Remove the dummy cover and slide the optical disk drive into the bay.

2. Align with the screw holes and secure the disk drive with screws.

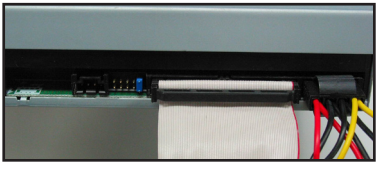


3. Orient and plug the IDE cable into the optical drive. The red stripe on the IDE cable is the pin1 end and should match the dimple marking Pin1 on the optical drive.

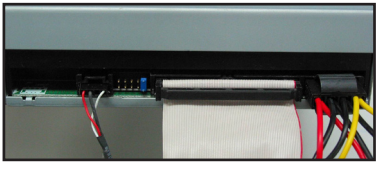


IDE cables are dummy-proof. Never force the IDE cable into the connector.

4. Connect the 4-pin power cable to the optical drive.



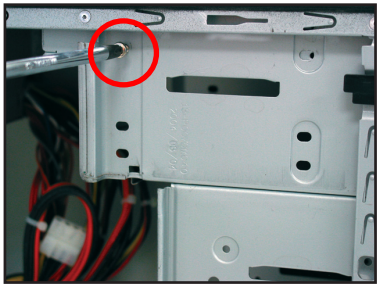
5. Attach the audio cable to the connector on the optical drive.



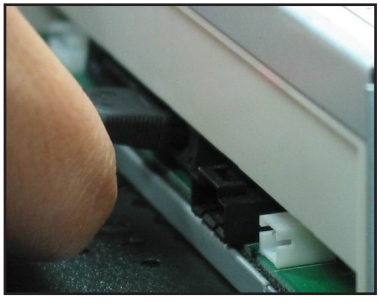
### 1.7.2 SATA optical disk drive

1. Remove the dummy cover and slide the optical disk drive into the bay.

2. Align with the screw holes and secure the disk drive with screws.

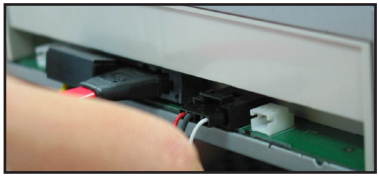


3. Orient and plug the SATA cable into the optical drive. SATA cables are dummy-proof. Never force a SATA cable into the connector.



4. Connect the SATA power cable to the the optical drive.

5. Attach the audio cable to the connector on the optical drive.

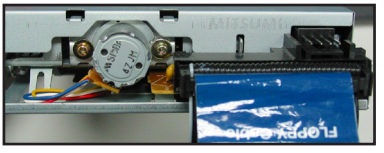


### 1.7.3 Floppy disk drive

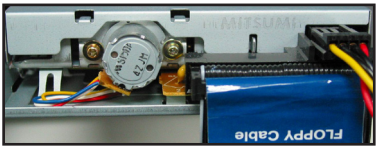
1. Remove the dummy cover and insert the floppy disk drive into the bay.

2. Align with the screw holes and secure the disk drive with screws.

3. Orient and plug the floppy interface cable into the floppy disk drive. The red stripe on the cable is the pin1 end and should match pin1 on the floppy disk drive.

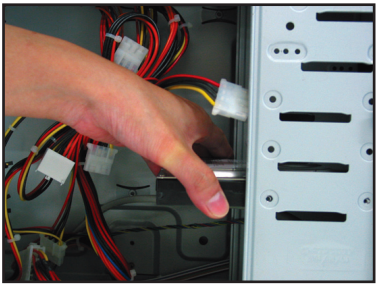


4. Connect the floppy power cable to the connector at the back of the floppy disk drive.



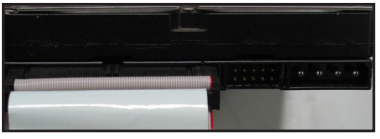
### 1.7.4 PATA hard disk drive

1. Insert the PATA hard disk drive into the bay.

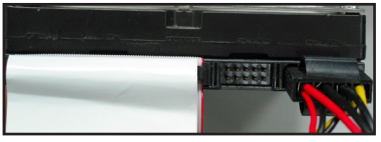


2. Align with the screw holes and secure the disk drive with screws.

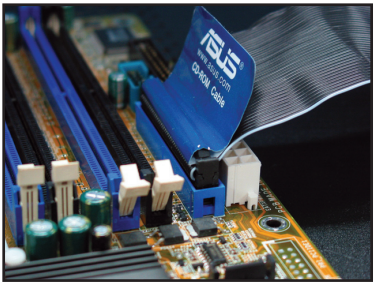
3. Orient and connect the signal cable to the hard disk drive. The red stripe on the cable is the pin1 end. Match the dummy-proof notch and do not force the cable into the connector.



4. Connect the 4-pin power cable to the connector at the back of the hard disk drive.

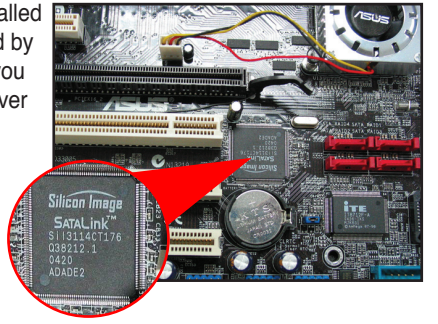


5. Attach the other end of the signal cable to the corresponding slot on the motherboard.



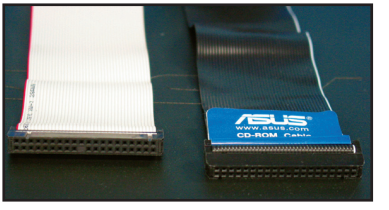
## Notes for installing PATA hard disk drive

- If your operating system is installed to the hard disk drive controlled by the RAID or other controllers, you have to install the controller driver to the hard disk first.

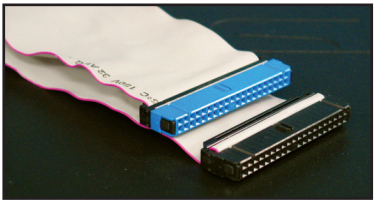



- The cables are designed with pull tabs. Just easily install the disk drives based on the cable labels. To prevent damaging the pins, pull the the cable tabs to disconnect the cable.

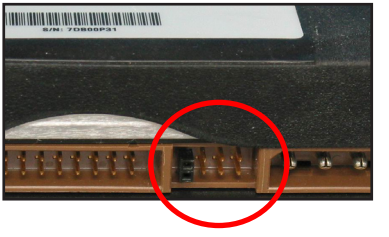
- There are two cables for ATA IDE disk drives, the newer 80-wire (right) and the older 40-wire (left) cables. For ATA66/100/133 disk drives, only the 80-wire cable can offer a better perfermance. The 40-wire cables are usually for the optical drives.




- The cable connector is color-coded. The blue one is for the host connector, and the black/gray one is for the primary/secondary disk drive.

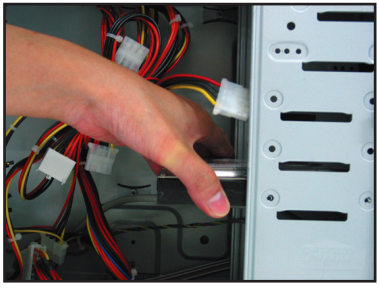


- When connecting two IDE devices, you have to set the jumpers to different position, one in master and one in slave. If you are using an 80-wire cable, you can use the cable select style.



### 1.7.5 SATA hard disk drive

1. Insert the SATA hard disk drive into the bay.



2. Align with the screw holes and secure the disk drive with screws.

3. Orient and connect the SATA cable to the hard disk drive. The cable can only fit in one direction.

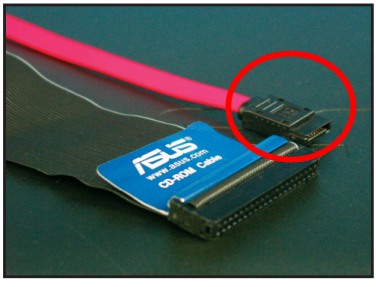
Warning : It is recommended to use either the SATA power connector or the Legacy power connector
Using both the SATA power connector and Legacy power connector may cause unpredictable results

4. Connect the SATA power cable to the connector at the back of the hard disk drive.

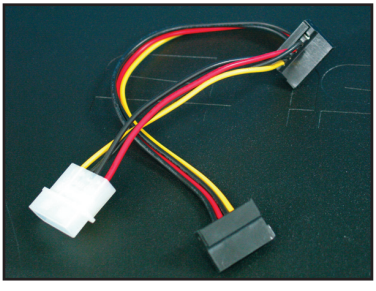
Warning : It is recommended to use either the SATA power connector or the Legacy power connector
Using both the SATA power connector and Legacy power connector may cause unpredictable results

### Notes for installing SATA hard disk drive

- Serial ATA (SATA) interface provides higher data transmission speed,and better voltage tolerance. The narrow design of the SATA cable also solves cabling issues and allows better airflow in the chassis.




- The SATA power cable connector is different from the traditional 4-pin power connector. ASUS motherboard bundles power adapter cables for you in case your power supply unit does not include this new connector.

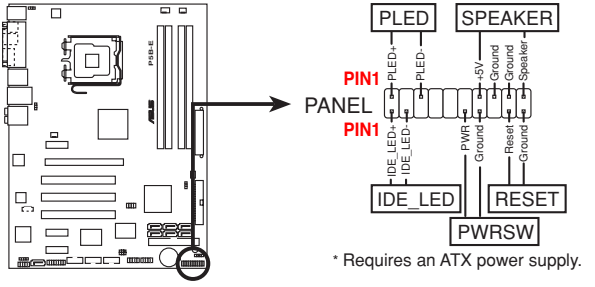


# 1.8 Front panel cables

To connect the front panel cables:

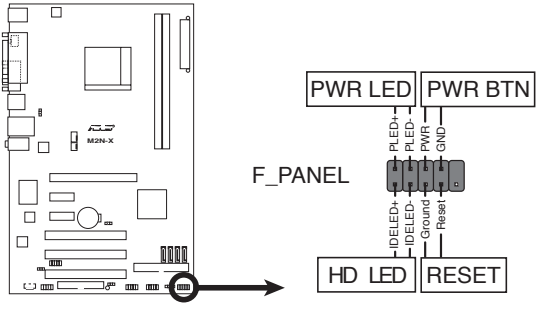
- RESET (Reset Switch)
- PLED (Power LED)
- PWRSW (Power Switch)
- IDE_LED (IDE Hard Disk Active LED)
- SPEAKER (Speaker Connector)

### 20-8 pin front panel connector




* Requires an ATX power supply.

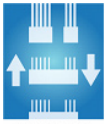
### 10-1 pin front panel connector

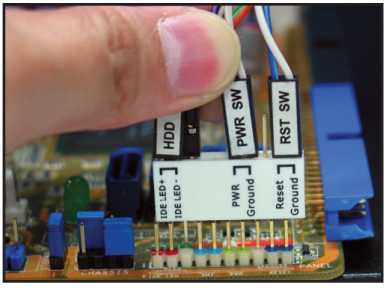



- The front panel cables of your chassis may differ with models or designs. Connect these connectors to the motherboard according to the label.
- If the LEDs do not light up and the pin location is correct, you might have mistaken the ground pins with the signal pins. Usually the white wire stands for the ground pins and the color-coded wire for the signal pins.
- The SPEAKER, RESET and PWRSW front panel cables have no specific orientation, while IDE_LED and PLED cables do. Connect the cable PIN1 to the connector PIN1 on the motherboard.
- The front panel connector varies with your motherboard model, refer to the user guide for more information.

### ASUS Q-Connector

ASUS Q-Connector's one step installation saves your time from struggling with the messy front panel cables. Refer to the user guide for details.



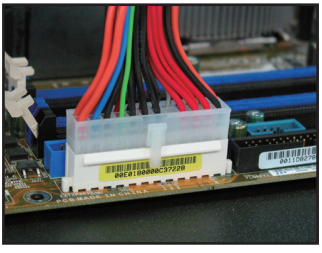




The Q-connector is available in selected models. Refer to the user guide for details.

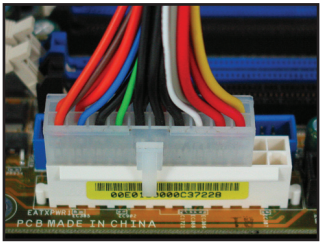
## 1.9 Connecting the ATX power

The ATX power connectors can fit in only one orientation. Use the side clip to hook the connectors to the motherboard. DO NOT force the male power connectors into the female counterparts on the motherboard. Usually there will be two connectors on the motherboard: 24-pin and 4-pin power connectors. Some older power supply units may only have 20-pin power connector which also fits the 24-pin power connector on the motherboard.

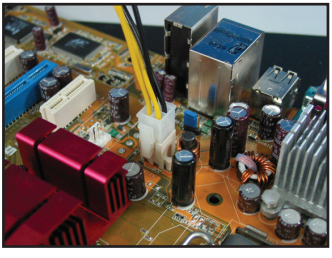
**24-pin power connector**



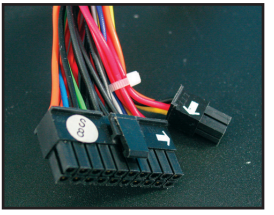
**20-pin power connector (on the 24-pin female counterpart)**

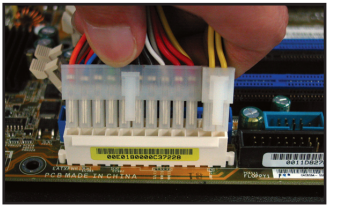



**4-pin power connector**



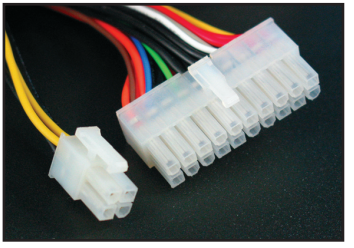
- DO NOT attach the external AC power when connecting the power connectors to the motherboard.
- Make sure the power connectors are firmly secured to the motherboard.
- If your power supply supports 20-pin+4-pin, you are able to combine these two connectors and install to the 24-pin connectors on the motherboard.



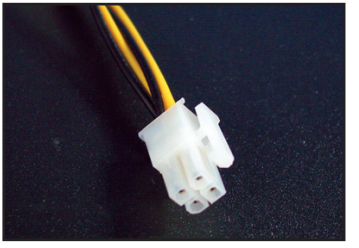


## Power connectors

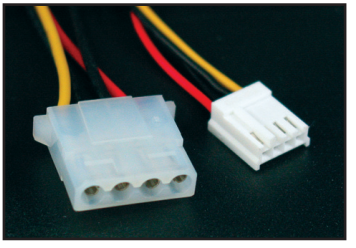
**20+4 (24) pin ATX connector**



**4-pin ATX connector**

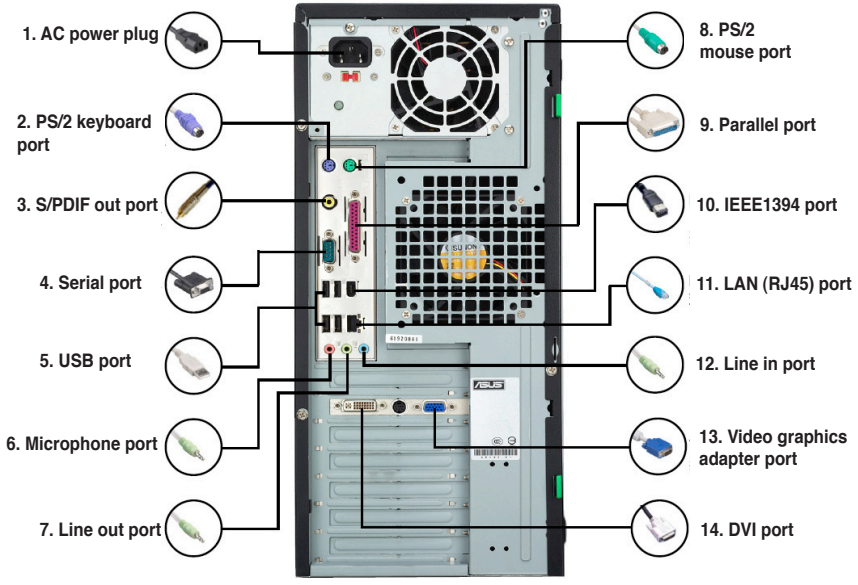


**peripheral power connector (left)**
**floppy power connector (right)**



## 1.10 Peripheral devices and accessories

Refer to the figure for connecting the peripheral devices and accessories.




1. AC Power plug + power extension cord
2. PS/2 keyboard port + keyboard
3. S/PDIF out port + digital 5.1 speaker system
4. Serial port + PDA dock
5. USB port + USB devices
6. Microphone port + microphone
7. Line out port + speaker
8. PS/2 mouse port + mouse
9. Parallel port + printer
10. IEEE1394 port + external hard disk drive
11. LAN (RJ45) port + modem
12. Line in port + recorder
13. VGA port + CRT monitor
14. DVI port + LCD monitor

The rear panel connectors vary with models. Refer to the user guide for details.

## 1.11 Starting up for the first time

The system then runs the power-on self tests or POST. While the tests are running, the BIOS beeps.

| BIOS Beep | Description |
|---|---|
| One continuous beep followed by three short beeps | No VGA detected |
| One continuous beep followed by two short beeps then a pause (repeated) | No memory detected |
| One continuous beep followed by four short beeps | Hardware component failure (AMI BIOS) |
| Four short beeps | Hardware component failure (AWARD BIOS) |

### Troubleshooting

| Trouble | Action |
|---|---|
| • Cannot turn on the computer<br>• Power LED is not lit.<br>• Power supply fan is not working. | Make sure the power cord is connected correctly. |
| The computer is on but the monitor is black. | • Make sure the monitor power is on and the VGA cable is connected correctly.<br>• Adjust the monitor brightness and contrast.<br>• Shut down the computer and remove the power cord. Check whether the VGA card is installed firmly. |
| No memory detected | • Make sure the memory module is correct.<br>• Make sure the DIMMS are firmly seated on the DIMM socket.<br>• Make sure the memory module is from the qualified vedor list. Refer to the user guide for the QVL. |
| Floppy Error<br>(The indicator is always lit or a warning message pops on the screen.) | • Check the BIOS configuration about floppy disk drive.<br>• Make sure the cables for the floppy disk drive is plugged correctly. |
| Hard/optical disk drive error (not recognized or detected) | • Make sure the jumper setting is correct. (Master/Slave)<br>• Check the BIOS configuration about hard/optical disk drive.<br>• Make sure the device cables are firmly attached.<br>• Make sure the device drivers are installed. |

# Chapter 2: Manage/update BIOS

## 2.1 AFUDOS utility

The AFUDOS utility allows you to update the BIOS file in DOS environment using a bootable floppy disk with the updated BIOS file. This utility also allows you to copy the current BIOS file that you can use as backup when the BIOS fails or gets corrupted during the updating process.

### Copying the current BIOS

To copy the current BIOS file using the AFUDOS utility:

- Make sure that the floppy disk is not write-protected and has at least 1024KB free space to save the file.
- The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be same as shown.

1. Copy the AFUDOS utility (afudos.exe) from the motherboard support CD/DVD to the bootable floppy disk you created earlier.
2. Boot the system in DOS mode, then at the prompt type:

   **afudos /o[filename]**

   where the [filename] is any user-assigned filename not more than eight alphanumeric characters for the main filename and three alphanumeric characters for the extension name.

3. Press <Enter>. The utility copies the current BIOS file to the floppy disk.

```
A:\>afudos /oOLDBIOS1.rom
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
    Reading flash ..... done
    Write to file...... ok
A:\>
```

   The utility returns to the DOS prompt after copying the current BIOS file.

### Updating the BIOS file

To update the BIOS file using the AFUDOS utility:

1. Visit the ASUS website (www.asus.com) and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable floppy disk.

Write the BIOS filename on a piece of paper. You need to type the exact BIOS filename at the DOS prompt.

2. Copy the AFUDOS utility (afudos.exe) from the motherboard support DVD to the bootable floppy disk you created earlier.
3. Boot the system in DOS mode, then at the prompt type:

   **afudos /i[filename]**

   where [filename] is the latest or the original BIOS file on the bootable floppy disk.

```
A:\>afudos /iP5K3D.ROM
```

4. The utility verifies the file and starts updating the BIOS.

```
A:\>afudos /iP5K3D.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

    WARNING!! Do not turn off power during flash BIOS
    Reading file ....... done
    Reading flash ...... done

    Advance Check ......
    Erasing flash ...... done
    Writing flash ...... 0x0008CC00 (9%)
```

DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

5. The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive.

```
A:\>afudos /iP5K3D.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

    WARNING!! Do not turn off power during flash BIOS
    Reading file ....... done
    Reading flash ...... done

    Advance Check ......
    Erasing flash ...... done
    Writing flash ...... done
    Verifying flash .... done

    Please restart your computer

A:\>
```

# 2.2 Award BIOS Flash Utility

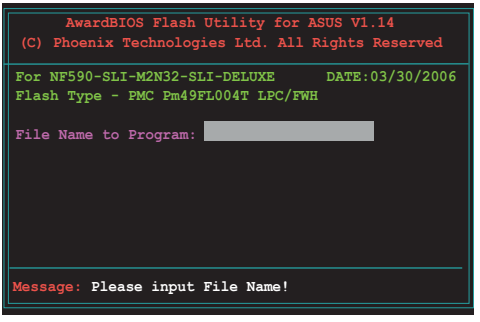
## Updating the BIOS

The Basic Input/Output System (BIOS) can be updated using the AwardBIOS Flash Utility. Follow these instructions to update the BIOS using this utility.

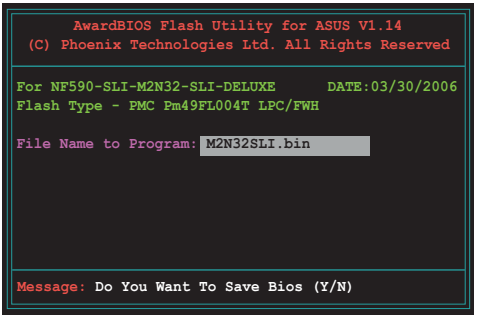
1. Download the latest BIOS file from the ASUS web site. Rename the file to XXXXX.BIN (model name.BIN)and save it to a floppy disk, CD ROM or a USB flash disk in **FAT 16/12 format**.

Save only the updated BIOS file in the disk to avoid loading the wrong BIOS file.

2. Copy the AwardBIOS Flash Utility (awdflash.exe) from the Software folder of the support CD to the floppy disk, CD ROM or a USB flash disk with the latest BIOS file.
3. Boot the system in DOS mode using the bootable floppy disk, CD ROM or a USB flash disk you created earlier.
4. Under the DOS mode, use <X:> (X stands for the name of the disk assignment) to switch to the folder of floppy disk, CD ROM or USB flash disk you saved the BIOS file and AwardBIOS Flash Utility.
5. At the prompt, type awdflash then press <Enter>. The Award BIOS Flash Utility screen appears.

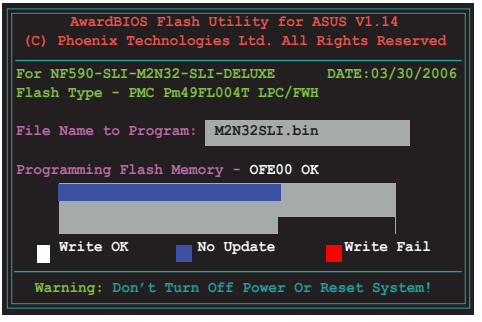

AwardBIOS Flash Utility for ASUS V1.14
(C) Phoenix Technologies Ltd. All Rights Reserved
For NF590-SLI-M2N32-SLI-DELUXE DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH
File Name to Program:
Message: Please input File Name!

6. Type the BIOS file name in the File Name to Program field, then press <Enter>.


AwardBIOS Flash Utility for ASUS V1.14
(C) Phoenix Technologies Ltd. All Rights Reserved
For NF590-SLI-M2N32-SLI-DELUXE DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH
File Name to Program: M2N32SLI.bin
Message: Do You Want To Save Bios (Y/N)

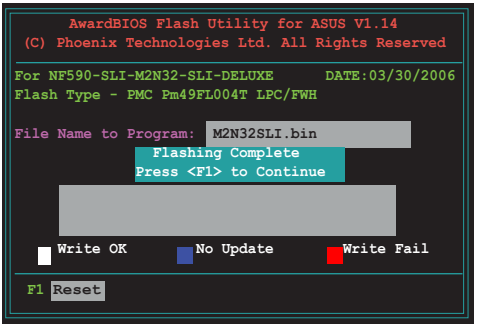
7. Press <N> when the utility prompts you to save the current BIOS file. The following screen appears.

8. The utility verifies the BIOS file in the floppy disk, CD ROM or a USB flash disk and starts flashing the BIOS file.


AwardBIOS Flash Utility for ASUS V1.14
(C) Phoenix Technologies Ltd. All Rights Reserved
For NF590-SLI-M2N32-SLI-DELUXE DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH
File Name to Program: M2N32SLI.bin
Programming Flash Memory - OFE00 OK
Write OK
No Update
Write Fail
Warning: Don't Turn Off Power Or Reset System!

DO NOT turn off or reset the system during the flashing process!

9. The utility displays a Flashing Complete message indicating that you have successfully flashed the BIOS file. Remove the disk then press <F1> to restart the system.



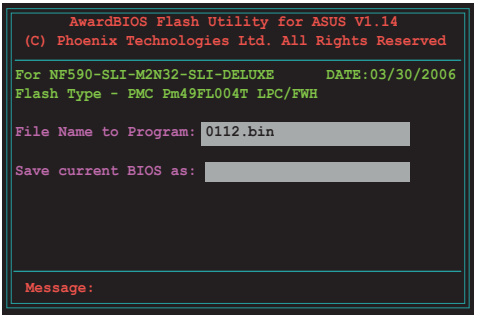
## Saving the current BIOS file

You can use the AwardBIOS Flash Utility to save the current BIOS file. You can load the current BIOS file when the BIOS file gets corrupted during the flashing process.

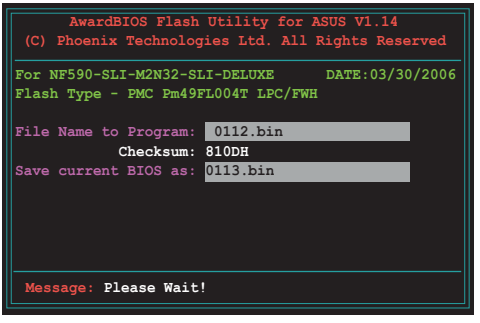
Make sure that the floppy disk, CD ROM or a USB flash disk has enough disk space to save the file.

To save the current BIOS file using the AwardBIOS Flash Utility:

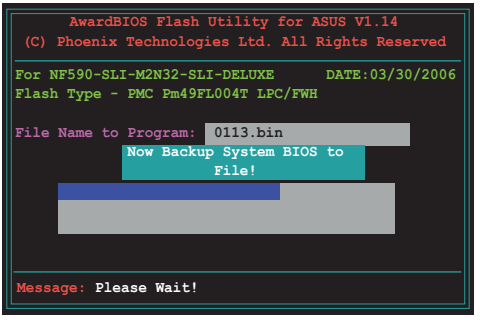
1. Follow steps 1 to 6 of the previous section.
2. Press <Y> when the utility prompts you to save the current BIOS file. The following screen appears.


AwardBIOS Flash Utility for ASUS V1.14
(C) Phoenix Technologies Ltd. All Rights Reserved
For NF590-SLI-M2N32-SLI-DELUXE DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH
File Name to Program: 0112.bin
Save current BIOS as:
Message:

3. Type a filename for the current BIOS file in the Save current BIOS as field, then press <Enter>.


AwardBIOS Flash Utility for ASUS V1.14
(C) Phoenix Technologies Ltd. All Rights Reserved
For NF590-SLI-M2N32-SLI-DELUXE DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH
File Name to Program: 0112.bin
Checksum: 810DH
Save current BIOS as: 0113.bin
Message: Please Wait!

4. The utility saves the current BIOS file to the disk, then returns to the BIOS flashing process.


AwardBIOS Flash Utility for ASUS V1.14
(C) Phoenix Technologies Ltd. All Rights Reserved
For NF590-SLI-M2N32-SLI-DELUXE DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH
File Name to Program: 0113.bin
Now Backup System BIOS to File!
Message: Please Wait!

## 2.3 ASUS Update utility

The ASUS Update utility allows you to manage, save, and update the motherboard BIOS in Windows® environment. The ASUS Update utility allows you to:

- Save the current BIOS file;
- Download the latest BIOS file from the Internet;
- Update the BIOS from an updated BIOS file;
- Update the BIOS directly from the Internet; and
- View the BIOS version information.

This utility is available in the support CD/DVD that comes with the motherboard package.

ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

### Installing ASUS Update

To install ASUS Update:

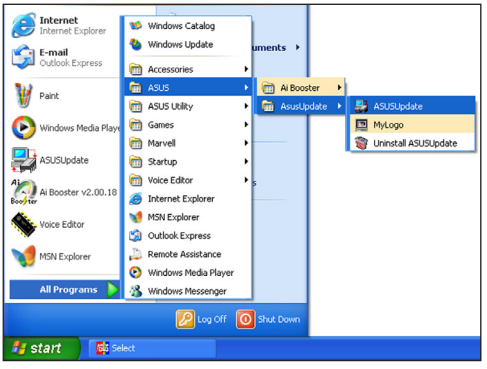
1. Place the support CD/DVD in the optical drive. The Drivers menu appears.
2. Click the Utilities tab, then click Install ASUS Update VX.XX.XX.
3. The ASUS Update utility is copied to your system.

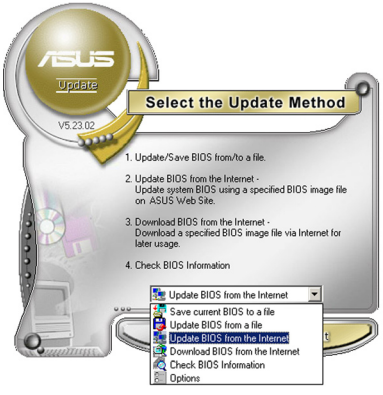
Quit all Windows® applications before you update the BIOS using this utility.

## Updating the BIOS through the Internet

To update the BIOS through the Internet:

1. To aunch the ASUS Update utility from the Windows® desktop, click **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.



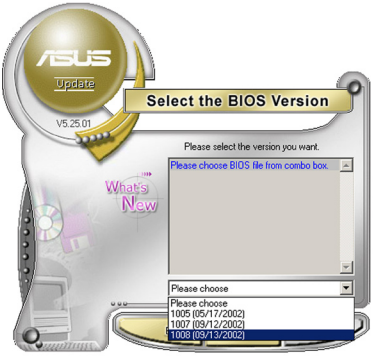


Update
V5.23.02
Select the Update Method
1. Update/Save BIOS from/to a file.
2. Update BIOS from the Internet - Update system BIOS using a specified BIOS image file on ASUS Web Site.
3. Download BIOS from the Internet - Download a specified BIOS image file via Internet for later usage.
4. Check BIOS Information
Update BIOS from the Internet
Save current BIOS to a file
Update BIOS from a file
Update BIOS from the Internet
Download BIOS from the Internet
Check BIOS Information
Options

Update
V5.23.02
Select the Update Server
Before Continue, please make sure that your system is connected to the Internet. You can then choose a web site by yourself or click AutoSelect button, ASUS Update will choose the best site based on network traffic automatically for you.
Passive
Proxy Setting
Auto Select
ftp.asus.com.tw
Back
Cancel
Next

2. Select **Update BIOS** from the drop-down menu list, then click **Next**.

3. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select**. Click **Next**.

4. From the FTP site, select the BIOS version that you wish to download. Click **Next**.
5. Follow the screen instructions to complete the update process.

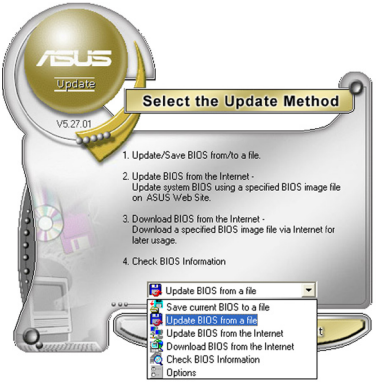



The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail of all its features.

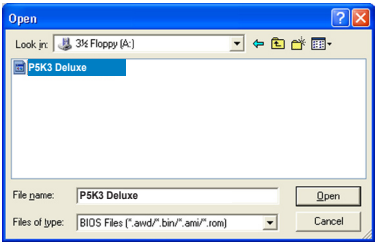
## Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

1. To launch the ASUS Update utility from the Windows® desktop, click **Start** > **Programs** > **ASUS** > **ASUSUpdate** > **ASUSUpdate**. The ASUS Update main window appears.
2. Select **Update BIOS** from the drop-down menu list, then click **Next**.


Update
V5.27.01
Select the Update Method
1. Update/Save BIOS from/to a file.
2. Update BIOS from the Internet - Update system BIOS using a specified BIOS image file on ASUS Web Site.
3. Download BIOS from the Internet - Download a specified BIOS image file via Internet for later usage.
4. Check BIOS Information
Update BIOS from a file
Save current BIOS to a file
Update BIOS from a file
Update BIOS from the Internet
Download BIOS from the Internet
Check BIOS Information
Options

3. Locate the BIOS file from the Open window, then click **Open**.
4. Follow the screen instructions to complete the update process.



# Chapter 3: Troubleshooting

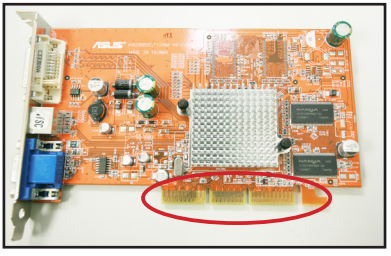
## 3.1 Troubleshooting for Motherboard DIY

After assembling your own computer, you might encounter troubles in starting it up. This chapter provides answers to some common questions about your PC before entering the operating system. Read this chapter for basic troubleshooting. It saves time and hassles for you on contacting ASUS technical support team or returning the product for warranty service.

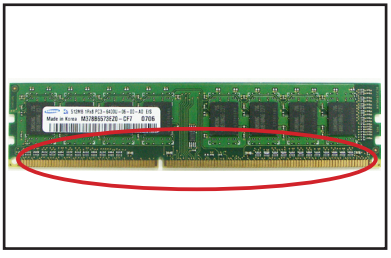
### 3.1.1 Basic troubleshooting

#### A. Bad connection

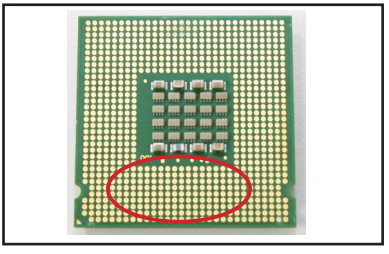
1. Make sure there is no contaminants on the gold contact or the pins.
2. Use a cotton bud or an eraser and gently rub the gold contact. Remember to brush away the eraser crumbs.



VGA card gold contact



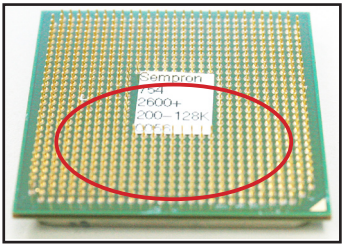
DIMM gold contact



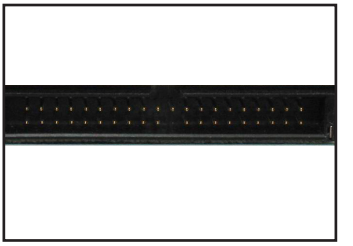
LGA775 processor gold contact points

Handle the card or the CPU by its edges and DO NOT touch the gold contact. Static electricity will seriously damage the device.

3. Make sure there is no broken or bended pins on your connector pins or CPU pins. A broken and bended pin will cause the component malfunction. Contact your retailer for further support.




AMD CPU gold pins

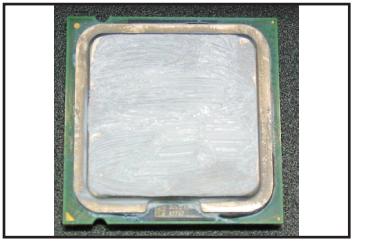


Connector pins

If the broken or bended pins are caused after the purchase, your retailer may ask for repair charge. Sometimes the broken or bended pins are NOT REPAIRABLE.

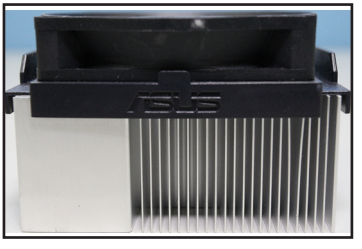
## B. CPU overheated

1. Wipe clean the CPU surface with the clean cloth. Apply several drops of thermal paste to the exposed area of the CPU that the heatsink will be in contact with. Make sure that it is spread in an even thin layer.

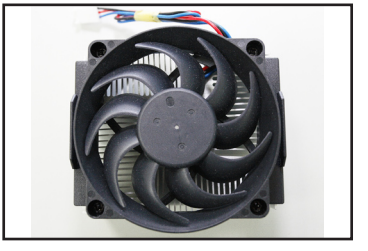


CPU surface

2. Make sure there is no contaminants on the heatsink and fan.



Side view of heatsink and fan



Top view of heatsink and fan

3. Follow the instructions of heatsink and fan manufacturers to clean the contaminants that will slow down the fan rotation.

## 3.2 Other common troubles

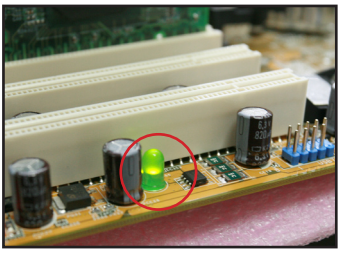
- When removing devices from the system, ensure all the power cables are unplugged.
- All the error messages will be displayed on screen during the Power-On Self-Test (POST).
- If there are BIOS beeps, refer to section 1.11 for details.
- Go over the checklist table below for further check.

| | Check Items | | | | | |
|---|---|---|---|---|---|---|
| | Power LED | Screen display | Heatsink and fan | BIOS beeps | Error messages | Reference page |
| No power | Off | No | Stop | No | N/A | 3-4 |
| No screen display | On | No | Stop | No | N/A | 3-5 |
| | On | No | Running | No | N/A | 3-5 |
| | On | No | Running | Yes | N//A | 3-5 |
| Failure to enter OS | On | Yes | Running | Yes | Yes | 3-5 |
| | On | Yes | Running | No | Yes | 3-5 |
| | On | Yes | Running | No | No | 3-5 |

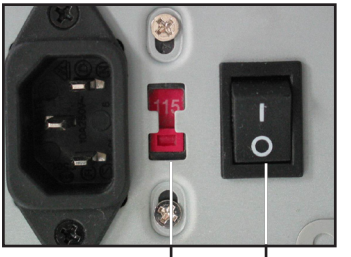
If the problem has been fixed but a new problem emerges, go over the checklist again. If the problem persists, contact your retailer or ASUS technical support team for further help.

### 3.2.1 No power

ASUS motherboards come with a standby power LED. The LED lights up to indicate that the system is ON. If the LED stays unlit, follow the instructions below to fix the problem.



1. Make sure to adjust your power supply to the correct AC input voltage in your area, and the power supply is turned on.

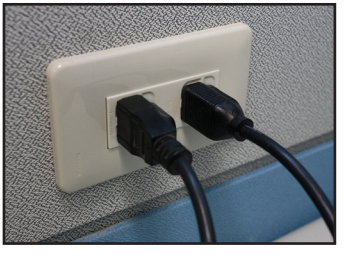


AC input voltage switch

Power switch
"—": On; "O": Off

- Before adjusting the AC input volage, ensure to disconnect the power plug. Failure to do so will seriously damage the power supply unit.
- Failure to adjust the power supply to the correct AC input volage will seriously damage the system.

2. Make sure you have attached the power cord to the wall outlet.
   - Connect the power plug directly to the wall outlet. DO NOT connect it to the power extension, uninterruptible power supply (UPS) or other devices.
   - Exchange the power plugs of the system and the monitor to check whether the wall outlet is working normally.



3. If the problem persists, you may need to contact your retailer for a new power supply unit. If the power supply unit functions, contact your ASUS motherboard retailer for motherboard warranty service.

### 3.2.2 Failure to boot-up; No screen display

Most boot-up failure and no screen display result from device defection or incorrect installation. Follow the instructions below to fix the problem.

1. Make sure that all the power cables are attached, including the system and the monitor.
2. Make sure if the problem comes from expansion devices.
   - Remove all the expansion card and devices. Use only motherboard, monitor, VGA card, memory modules, power supply unit, heatsink and fan, keyboard, and mouse to reboot the system.
   - If the system is working normally, it is one of the expansion devices that causes the problem. Reinstall the expansion devices you removed back to the system one by one and find out the defective device.
3. Make sure if the problem comes from the basic system devices.
   - If you have some spare devices, you can replace the devices in turn to find out the defective device in the order of “memory module, CPU, motherboard, hard/optical disk drive, keyboard/mouse.”

When you find out the defective device, contact your device retailer for service.

### 3.2.3 Failure to enter the operating system

1. If the problem emerges after you add a hardware, remove the newly added hardware and reboot the system. If the system is working normally without the hardware, the device may be defective or incompatible with the system. Contact the device retailer for help.
2. If the problem emerges after you install a software or driver, follow the instructions below to fix the problem.
   a. Enter the operating system in safe mode and remove the software or driver.
   b. Contact the operating system company for further support.
   c. If the previous instructions fail to fix the problem, you may need to reformat your hard disk drive and reinstall a new operating system.
3. If the problem emerges after you change the BIOS settings, reboot and enter the BIOS to load the setup defaults. Refer the motherboard user guide for details.

4. If the problem comes from a computer virus or a corrupt file, follow the instructions below to fix the problem.
   a. Enter the operating system in safe mode and do a full system virus scan using an anti-virus application.
   b. Contact the operating system company for further support.
   c. If the previous instructions fail to fix the problem, you may need to reformat your hard disk drive and reinstall a new operating system.

### 3.2.4 FAQs

Q1: The memory reported in POST is different from the memory installed.

A1: The reported difference in memory may result from defective memory modules or incorrect DIMM installation. Make sure the DIMMs are in good condition and the DIMMs are installed correctly. Refer to the motherboard user guide for details. If you install 4.0 GB memory and it reports 3.X GB, it is normal.

Q2. The system cannot detect the floppy disk drive, but the floopy disk stays lit.

A2: The floopy disk cables are not properly installed. Make sure the red stripe on the cable(pin1 end) should match pin1 on the floppy disk drive.

Q3: Fail to enter the operating system after the USB flash disk or external hard disk drives.

A3: When the system detects USB flash disk or USB interface hard disks, it may change the booting device priority. Remove the USB devices and restart the system.

Q4: When installing Windows XP, it fails to locate the hard disk drives installed to the RAID controller.

A4: Windows XP does not include the RAID controller driver so the hard disk drives are not detected. Copy the RAID controller driver to a floppy disk and when booting the system with the Windows XP disk, press <F6> to read the driver from the floppy disk. Refer to the motherboard user guide for details.

# Chapter 4: Computer care tips

## 4.1 Proper care of your PC

Your personal computer is like other home appliances. Keep your computer away from humidity, direct sun, and static electricity source. You should not move the computer when it is turned on in case of damage. Internal dust will affect the operating disk drive and contribute to overheating problem which will cause computer crash or damage the components.

## 4.2 Basic knowledge

1. Encase your computer with dust cover when not in use.
2. When using your computer, do not put anything on the CRT monitor to block the ventilation holes. Excessive heat will cause the monitor malfunction.
3. Do not place the computer close to the wall and leave some space for heat dissipation. Overheating will cause the system crash.
4. Place the computer on a stable surface.
5. Keep the computer away from areas of extreme temperature. 5°C to 30°C is the best surroundings temperature. Use an air conditioner or a electric fan to gain a better heat dissipation.
6. Arrange the ribbon cables neatly to avoid insufficient airflow.

## 4.3 Usage knowledge

1. Turn on and shut down your computer regularly. If your computer needs to be on for a long time, use a better system/CPU fan and high voltage power supply unit.
2. A sudden power failure will damage the hard disk drive. When the power supply is unstable, add an uninterruptible power supply to your computer is recommended.
3. Rearrange the data files, do the virus scanning and virus codes renewal and defragment disk regularly.
4. Clean your computer regularly. (Unplugged all the power cords before cleaning)
    - Uninstall the motherboad and hard/optical disk drives, then clean them with canned air or a soft brush.
    - Remove the dust and hair debris on the power supply unit with an anti-static vacuum.

## 4.4 Tips

1. If your computer will not be used for a long time, put some desiccant moisture absorbers in the chassis to prevent humidity damage.
2. In some hot and humid climatic areas, you had better turn on your computer every other week. This also helps prevent humidity damage.